

Dual *Bacillus Calmette–Guerin* vaccination along the border communities of Angola and Namibia

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ABSTRACT

Without a doubt, the synchronization of public health intervention on health issues along the international border will enhance the control of epidemic-prone disease and other health-related behavior. However, the lack of holistic planning and the involvement of the members of border communities could result in undesired health related events. This report advanced reasons that could have resulted in a child receiving two separate doses of *Bacillus Calmette–Guerin* vaccine within the first 4 days of life in two different health facilities. Finally, this report highlighted the need for proactive community participation and the need for consensus by experts on guidelines on how to deal with such cases particularly in the unfortunate event of adverse reactions.

Keywords: *Bacillus Calmette–Guerin*, neonate, repeated vaccination, scar formation

Introduction

Angola and Namibia share common boundaries along three provinces of Angola (Cunene, Namibe, and Caundo Cubango) and four Provinces of Namibia (Kunene, Omusati, Oshana, and Oshana) [Figure 1].

Immunization is one of the high-impact public health interventions that have significantly reduced morbidity, mortality, and disability among children. In order to strengthen the performance of immunization system and other health-related issues along their borders, a memorandum of understanding was signed on March 18, 2011.^[1] Although cases of overdose and or intramuscular instead intradermal injection have been well documented,^[2] however, no published case of a child receiving two separate doses of *Bacillus Calmette–Guerin* (BCG) vaccine within the first 4 days of life as in the present report. Against this context, we present a case of double BCG vaccination of a child living in Calai town, Cuando Cubango province of Angola.

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Case Report

The said child was born on the April 25, 2013 and was BCG administered at birth in line with the Angolan national immunization schedule. Four days later, the mother on health reasons crossed into Rundu district of Namibia, where the same child was revaccinated with BCG April 30, 2013 with date of birth recorded as April 28, 2013 [Figure 2]. The health worker of Calai Health Centre (where the child was first vaccinated for BCG) and the provincial team made a follow-up visit when they noticed that the child missed the subsequent vaccination visits at 2 and 4 months of age at which time the child is supposed to receive the second and third doses of pentavalent, poliomyelitis, and hepatitis B vaccines. The child was traced and verified with the information on the child's vaccination card and the nominal immunization register which contain mother name, and her address. Furthermore, the vaccination site was checked for scarification, and two BCG scars were noticed on the left arm [Figure 3]. On further probing, the mother presented two child immunization cards (Angolan and Namibian) that indicated the child was vaccinated for BCG in both countries within an interval of 3 days [Figure 2].

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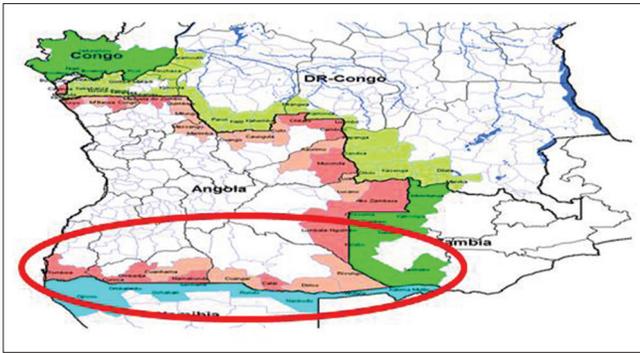


Figure 1: Communities along the Angolan–Namibian border



Figure 2: The child immunization cards of Angola and Namibia



Figure 3: The *Bacillus Calmette–Guerin* scars of the two vaccinations received

Discussion

Cross-border immunization activities are conducted in different parts of Africa to improve herd immunity of people living in the border areas and ultimately sustain the gains recorded in polio eradication initiative, measles, and neonatal tetanus elimination.^[3,4] Furthermore, these border areas were reported to be sanctuaries for diseases earmarked for eradication (polio

and or elimination such as measles and neonatal tetanus.^[4] The time interval between BCG vaccination and scar formation has been reported to be influenced by the type of strain that was used in developing the vaccine, as it determines the virulence and antibody production.^[5] It has been reported that the time interval between BCG vaccination and scar formation is commonly within 6 weeks,^[6,7] although extreme cases up to 3 or more months have been documented.^[8,9] Hence, the duration between the two BCG vaccinations received for the said child was inadequate for scar formation and therefore, the health worker who administered the second dose could only avoid such instances with a detailed history. However, it is possible that clients/patients from Angolan border communities claim to be nationals of Namibia to avoid paying fees for service rendered as people along the borders of both countries speak same local Kuangale language. Although immunization is free in both countries, but once the child has a Namibian child vaccination card (called child passport in Namibia), it will open access to other maternal and child health care services since non-Namibians are charge higher than citizens of Namibia. The differences in policy on whether all services are free irrespective of nationality as is obtained in Angola and not so in Namibia could be the underlying reason for the mother to subject her child to a second dose of BCG. Having the Namibian child immunization card could facilitate access to other health care services, which otherwise must be paid for. The cost of health care services has been reported as one of the major obstacles affecting the access and utilization maternal and child services.^[10]

Another plausible reason could be poor community knowledge that vaccination and the treatment for tuberculosis, leprosy and AIDS are all offered free in both countries. The fact that local community leaders (traditional, religious) are generally not involved in the regional/provincial meetings where decisions are made rub all the opportunity to interact with representatives of these border communities that would have provided better insights of the community concerns and how to tackle them. There is, therefore, the need for systematic engagement of local leaders to enhance their proactive participation in planning and community mobilization activities.

While vaccines are highly effective in reducing the burden of vaccine-preventable diseases, however, they have also been reported to cause adverse events following immunization (AEFI).^[2] The occurrence of this case of dual BCG vaccination also raises concern on the magnitude of such cases and the sensitivity of the surveillance for AEFI. Hence, the two countries need to strengthen the surveillance AEFI through mobilization of communities, training of focal health workers, supervision, and monitoring by the district and provincial teams, to identify such cases and implement necessary remedial actions.

Finally, the current incident underscored the need for consensus by experts, government, and partners on guidelines on how to deal with such cases and policy framework on cross-border immunization activities to guide field workers that work in similar circumstances in both countries and other parts of the world.

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Conflicts of interest

There are no conflicts of interest.

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